Distribution

Unit Managers' Meeting: 100 Areas Remedial Action Unit/Source Operable Units

Rudy Guercia ..... DOE-RL, RP (A6-38)
Mary Jarvis ..... DOE-RL, RP (A5-14)
Hector Rodriguez ..... DOE-RL, RP (A5-15)
Chris Smith ..... DOE-RL, RP (A3-04)
Mike Thompson ..... DOE-RL, RP (A6-38)
Arlene Tortoso ..... DOE-RL, RP (A6-38)
Kent Westover ..... DOE-RL, RP (A3-04)

Lisa Treichel ..... DOE-HQ (EM-442)

John Price ..... WDOE (Kennewick) (B5-18)
Noel Smith-Jackson ..... WDOE (Kennewick) (B5-18)
Jean Vanni ..... WDOE (Kennewick) (B5-18)
Wayne Soper ..... WDOE (Kennewick) (B5-18)

Dennis Faulk ..... EPA (B5-01)

Randy Acselrod ..... Washington Dept. of Health
Richard Jaquish ..... Washington Dept. of Health
Debora McBaugh ..... Washington Dept. of Health

Eileen Murphy-Fitch ..... FD (A1-14)

John April ..... BHI (T8-02)
Jane Borghese ..... FH (E6-35)
Rich Carlson ..... BHI (H0-17)
Frank Corpuz ..... BHI (H0-17)
Rick Donahoe ..... BHI (X5-60)
Jon Fancher ..... CHI (X5-60)
Ella Feist ..... CHI (H9-01)
Kim Koegler ..... BHI (H0-23)
Rex Miller ..... BHI (X3-40)
Robert Nielson ..... BHI (X9-08)
Debbie Roskelley ..... BHI (X0-17)
Annie Smet ..... BHI (X0-17)
Dean Strom ..... CHI (X3-40)
Jill Thomson ..... CHI (H9-01)
Joan Woolard ..... BHI (H0-02)
Administrative Record ..... BHI (H0-09) 2 copies

Please inform Debbie Roskelley (376-9850) – BHI (X0-17) of deletions or additions to the distribution list.

111221

Meeting Minutes Transmittal/Approval
Unit Managers' Meeting
100 Area Remedial Action and Waste Disposal Unit/Source Operable Unit
3350 George Washington Way, Richland, Washington
September 25, 2003

APPROVAL: _____ Date 10/23/03
Chris Smith/Jamie Zeisloft, 100 Area Unit Managers, RL (A3-04)

APPROVAL: _____ Date 12/4/03
Michael Thompson/ Arlene Tortoso, Waste Management Division, RL (A6-38)

APPROVAL: _____ Date 10/23/03
John Price, 100 Aggregated Area Unit Manager, Ecology (B5-18)

APPROVAL: _____ Date 12-04-03
Dennis Faulk, 100 Aggregate Area Unit Manager, EPA (B5-01)

Meeting minutes are attached. Minutes are comprised of the following:

Attachment 1	--	Attendance Sheet
Attachment 2	--	Agenda
Attachment 3	--	100 Area Meeting Minutes
Attachment 4	--	WIDS Site CVP Closeout Summary Table
Attachment 5	--	Remaining Sites Sample Design Closure Status Table
Attachment 6	--	Draft Update on Increased Concentrations of Tritium in Groundwater Near the KE and KW Reactor Complexes Handout
Attachment 7		Groundwater Handout

Prepared by: Debbie Roskelley Date 10/22/03
Debbie Roskelley (H0-17)

Concurrence by: Vern Dronen Date 10/23/03
Vern Dronen, Project Manager
BHI Remedial Action and Waste Disposal Project (H0-17)

Remedial Action and Waste Disposal Unit Managers' Meeting
Official Attendance Record – 100 Area
September 25, 2003

Please print clearly and use black ink

PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
DENNIS Faulk			
D. Chris Smith	DOE-RL	100 Area Project Manager	372-1544
Van Johnson	FH	100 GW Task Lead	373-3987
K. Michael Thompson	DOE-RL		373-0750
Kent R. Westover	DOE-RL	100 N	376-3967
Beth Rochette	~~DOE-RL~~ Ecology	100 area Commen	736-3020
Larry Gadbois	EPA		376-9884
Jack Donnelly	BHI	100 O.U.	372-9565
Kim Koegler	BHI	D&D Proj. Engr.	373 1628
Nelson Little	BHI	100N	375-4663
Jon Fancher	CHI	100N	373-9123
Mike Schwab	BHI	CVP	372-9407
J Thomson	CHI	CVP	372-9697
Pam Doctor	BHI	RISK	372-9107
John Ludowise	CHI	Eng.	372-9617
Jane V Borghese	FH	GW GPP	373-3804
Mary Hartman	PNNL	GW Mon. Proj	373-0028
Dib Goswami	Ecology	(N, D, H Groundwater) 100 Area GW	736-3015
Jamie Zeisloft	RL	100-K	372-0188

100 AREA
UNIT MANAGERS MEETING AGENDA

3350 George Washington Way
September 25, 2003

1:00 – 4:00 p.m. 3350 GWW (Room 1B45)

Administrative

- Meeting minutes status
- Review and approve last UMM minutes
- Next 100 UMM is October 23, 2003, at 1:00 – 4:00, 3350 GWW (1B45)

Remedial Action

100 Area Common

- Remaining Sites ESD Status
- Remaining Sites Sampling Efforts Status
- 100 F Burial Ground Design
- Burial Ground SAP revision
- 100 Area RDR & SAP comments

100 F, K, and Group 4

- 100 F General Status
- 100 K General Status

100 N

- Project update
- Crib Redesign
- RCRA Permit Modifications

100 B/C

- Project Status

105F Fuel Storage Basin

- RAWD and D&D Interface at 105F Fuel Storage Basin
- Backfilling at 105 F Fuel Storage Basin by RAWD and D&D to support SSE subcontractor mobilization

D&D

- Project Status

General Crossover Items

- CVP status

Review Open Action Items Log

100-NR-2 Groundwater OU

- Remediation treatment status

100-KR-4 Groundwater OU

- Remediation treatment status
- 100 K Burial Ground Soil Gas Investigation

100-HR-3 Groundwater OU

- Remediation treatment status

100-FR-3 Groundwater OU

-

100-BC-5 Groundwater OU

-

Groundwater

- 100 Area Open Action Items
- 100-Area Open forum and discussion
- 100-BC-5 and 100-FR-3 SAP status
- Recent change in tritium concentration near KE Fuel Storage Basin
- Status of aquifer tube installation project planning

Other

Outstanding 100 Area Unit Manager's Meeting Action Items

June 2003 Actions

- **Dennis Faulk asked Chris Smith to bring revegetation of 100-F backfilled areas above the FY04 funding line in the DWP.**

August 2003 Actions

- **John Price (Ecology) will get back to Rich Carlson (BHI) by Tuesday September 2, 2003 on the status of the MP-14 for 128-D-1 review.**

UNIT MANAGERS MEETING MINUTES

3350 George Washington Way, 1B45
September 25, 2003

1:00 – 3:00 p.m. **100 Area** **3350 GWW, 1B45**

Administrative

- Meeting Minute Status – August's meeting minutes were approved and signed by those in attendance.

- The next 100 Area Unit Managers Meeting will be held on October 23, 2003, at 3350 GWW room 1B45 starting at 1:00 p.m.

Remedial Action

100 Area Common

- Remaining Sites ESD – The revised ESD is being reviewed by both EPA and Ecology. Ecology indicated they had a few comments. Dennis Faulk (EPA) stated that the ESD was ready for EPA Region 10 review. Jack Donnelly (BHI) asked what the comments were, and Ecology stated they would send an email to the EPA.

- Remaining Sites Sampling Efforts Status – Six calculation briefs are out for signature. Dennis Faulk (EPA) stated that the 100-C-9 box culvert calculation brief needs a qualitative statement added that leach testing will be needed if hexavalent chromium readings are high then he will sign the calculation brief. He will sign one more on Friday and the remainder on Monday.

- 100-F Burial Ground Design – Jack Donnelly asked if EPA had comments on the 100-F Burial Ground and remaining sites air-monitoring plan. EPA indicated they had no comments, but to send the plan to Mr. Randy Acselrod (DOH). After Randy concurs D. A. Faulk will sign.

  Action: Jack Donnelly (BHI) to send the 100-F Air Monitoring Plan to Randy Acselrod (DOH).

- Burial Ground SAP Revisions – A new revision to the SAP is being reviewed by Ecology. Comments will be received next week.

- 100 Area RDR and SAP Comments – Comments are being addressed. Comment resolution needs to be consistent between the 100 and 300 Area documents. Need to make a determination on whether or not the tiered documents are primary documents. A meeting will be set up to discuss this.

  Action: Ella Feist to set up a meeting to resolve comments.

100 F, K, and Group 4

- 100-F General Status – Grass has been planted for revegetation; it is too late in the year to plant sagebrush.

- 100-K General Status – 116-KW-3 variance sampling is complete. The 116-K-1 remediation is nearly complete. The remediation project is continuing to remove plumes that do not extend outside the WIDS boundary. The inlet pipe is being removed from the 116-K-1 trench. Work on the 116-KE-4 Retention Basin will start in October and be completed before work begins on the 116-K-2 Mile-Long Trench. Work will be complete before it is impacted by the Eagle nesting restrictions that run from November 15 to March 15.

- Mitigation Action Plan – Jamie Zeisloft (RL) reported that the workshop regarding resource preservation with the tribes will be held in October. After the workshop they will get back to the discussion on the mitigation action plan.

100-B/C

- Rex Miller (BHI) reported that pipeline removal will be complete by September 30. Plumes are being found South of B Avenue, they are very deep and expensive to excavate. A BCP is being prepared to cover the cost.

- Four areas of the 100-C-9 72-in. Process Sewer are being characterized for hexavalent chromium to determine if some area of this sewer may be clean.

- 100-B-14 general area pipelines are being characterized to determine extent of needed remediation.

- Procurement has been issued for several 100-BC-Area burial ground and remaining sites remedial actions with work to begin January 12, 2004.

- Backfill concurrence for the 100-BC-Area pipeline remediation areas north of B Avenue is needed by early October to allow backfilling to proceed.

100-N

- Subcontractor has demobilized and all equipment is off site.

- The crib redesign should be complete in early October and the RFP should be out in late October.

- The RCRA permit modification to extend the schedule for 100-N Remedial Action will be processed by Ecology.

- Jack Donnelly again asked Ecology for the status of the Class 1 Permit Modification approval for extending the 100-N TSD schedules to December 2005. The Ecology representative stated that she did not know and would ask the Ecology lead for the 100-N Area.

  Action: John Price (Ecology) to contact DOE on status of approving the 100-N TSD schedule extension to December 2005 (Class 1 Permit Modification).

105-F Fuel Storage Basin

- This item will be removed from the agenda.

D&D

- 100-F Reactor construction is complete.

- Completed loadout of Section 3 of the 100-H Fuel Storage Basin and are working on Section 4.

- The S&M plan for 105-F Reactor should be transmitted to EPA next week.

- The 100-D Reactor design for safe storage has been submitted.

General Crossover Items

- The CVP Summary Table (Attachment 4) and the Remaining Sites Sampling Design Closure Status Table (Attachment 5) were distributed.

Groundwater

100-NR-2 Groundwater OU

- 100-NR-2 pump and treat was shutdown for repair on September 9. It will be back up this week. FH is working on a statement of work for PNNL to do phytoremediation and apatite studies.

100-KR-4 Groundwater OU

- 100-KR-4 pump and treat is operating normally. FH is working on a plan to characterize the NE end of the plume. A draft handout from Bob Peterson (PNNL) was distributed (Attachment 6). The handout gives information on the increased concentration of tritium in groundwater near the KE and KW Reactor complexes.

- Planning for installation of new aquifer tubes and characterization of the northeastern extent of the KR-4 plume continued. A draft sampling and analysis instruction is in

preparation and should be available for Ecology and EPA review by the first week of October.

100-HR-3 Groundwater OU

- 100-HR-3 pump and treat is operating normally. 100-D area chromium is still climbing between the ISRM and extraction well. Active water lines pass over the area and are suspect.

The groundwater handout is attached as Attachment 7.

Agenda Update

The River Corridor Risk Assessment should be added to the agenda in place of the 105-F Fuel Storage Basin item. John Sands will be the RL contact and Darci Teel will be the BHI contact.

Outstanding 100 Area Unit Manager's Meeting Action Items

June 2003 Actions

- **Dennis Faulk (EPA) asked Chris Smith (DOE) to bring revegetation of 100-F backfilled areas above the FY04 funding line in the DWP.**

August 2003 Actions

- **John Price (Ecology) will get back to Rich Carlson (BHI) by Tuesday September 2, 2003 on the status of the MP-14 for 128-D-1 review.**

September 2003 Actions

- **Jack Donnelly (BHI) to send the 100-F Air Monitoring Plan to Randy Acselrod (DOH).**
- **Ella Feist to set up a meeting to resolve comments.**
- **John Price (Ecology) to contact DOE on status of approving the 100-N TSD schedule extension to December 2005 (Class 1 Permit Modification).**

WIDS Site CVP Closeout Summary Table

WIDS Site Closeout	CVP Doc. No. documenting WIDS site closeout	EPA/ Ecology WIDS Signoff	Issue Rev. 0 CVP
100 B/C Area			
116-B-13	CVP-1999-00002	7/22/99	7/1999
116-B-14	CVP-1999-00003	7/22/99	7/1999
116-C-1	CVP-1998-00006	1/21/99	1/1999
116-B-1	CVP-1999-00012	12/8/1999	12/1999
116-B-11	CVP-1999-00001	12/8/1999	12/1999
116-C-5	CVP-1999-00004	12/8/1999	12/1999
116-B-4	CVP-1999-00014	2/24/2000	3/3/2000
116-B-6B	CVP-1999-00017	2/24/2000	3/3/2000
116-B-9	CVP-1999-00009	2/24/2000	3/3/2000
116-B-2	CVP-1999-00015	2/24/2000	3/3/2000
116-B-3	CVP-1999-00013	2/24/2000	3/3/2000
116-B-10	CVP-1999-00010	2/24/2000	3/3/2000
116-B-12	CVP-1999-00008	2/24/2000	3/3/2000
116-C-2A 116-C-2B 116-C-2C	CVP-1999-00019	3/15/2000	3/28/1999
116-B-6A 116-B-16	CVP-1999-00011	5/17/2000	5/26/2000
116-B-7 132-B-6 132-C-2	CVP-2002-00003	7/25/2002	8/6/2002
BC Pipeline	CVP-2002-00012	*(in progress 9/30/03)*	
100-B-5	CVP-2003-00014	6/18/2003	9/11/2003
1607-B7	CVP-2003-00004	5/27/2003	7/29/2003
1607-B8	CVP-2003-00005	5/27/2003	7/29/2003
1607-B9	CVP-2003-00006	6/19/2003	8/28/2003
1607-B10	CVP-2003-00007	5/27/2003	7/29/2003
1607-B11	CVP-2003-00008	5/27/2003	7/29/2003
100-C-3	CVP-2003-00009	5/27/2003	7/28/2003
118-C-4	CVP-2003-00015	6/25/2003	9/11/2003
100 D Area			
100-D-4 (107D5)	CVP-98-00004	3/25/1999	3/1999
100-D-20 (107D3)	CVP-98-00003	3/25/1999	3/1999
100-D-21(107D2)	CVP-98-00002	3/25/1999	3/1999
100-D-22 (107D1)	CVP-98-00001	3/25/1999	3/1999
1607-D2		closed	
1607-D2:1 Tile Field	CVP-98-00005	3/25/1999	3/1999
Septic Pipelines	CVP-2000-0004	9/26/2000	9/2000
Septic Tank	CVP-99-00005	11/23/1999	12/1999
116-DR-9 100-D-25	CVP-99-00006	1/6/2000	1/2000
116-D-7	CVP-99-00007	8/15/2000	8/2000
100-D-18 (107D4)	CVP-2000-00001	9/26/2000	10/2/2000
116-DR-1 116-DR-2	CVP-2000-00002	9/26/2000	9/27/2000
100-D-48		closed	
100-D-48:1 (Grp 2 North Pipelines)	CVP-2000-00003	3/14/2001	3/2001
100-D-48:2 (Grp 2 West Pipelines)	CVP-2000-00005	9/26/2000	10/2/2000
100-D-48:3 (Grp 3 Large Pipelines)	CVP-2000-00034	4/20/2001	4/20/2001
100-D-48:4 (Grp 3 Small Pipelines)	CVP-2000-00033	4/17/2001	4/20/2001
100-D-19 UPR-100-D-4	CVP-2000-00003	3/14/2001	3/2001
100-D-49		closed	
100-D-49:1 (Grp 2 North Pipelines)	CVP-2000-00003	3/14/2001	3/2001
100-D-49:2 (Grp 2 East Pipelines)	CVP-2000-00005	9/26/2000	10/2/2000
100-D-48:3 (Grp 3 Large Pipelines)	CVP-2000-00034	4/20/2001	4/20/2001

WIDS Site CVP Closeout Summary Table

WIDS Site Closeout	CVP Doc. No. documenting WIDS site closeout	EPA/ Ecology WIDS Signoff	Issue Rev. 0 CVP
100 D Area (cont.)			
UPR-100-D-2 UPR-100-D-3	CVP-2000-00005	9/26/2000	10/2/2000
100-D-5 100-D-6	CVP-2000-00034	4/20/2001	4/20/2001
116-D-3	no CVP site rejected	5/17/2000	N/A
116-D-4	CVP-2000-00008	10/23/2000	10/31/2000
116-D-6	CVP-2000-00009	11/7/2000	11/9/2000
116-D-1A 116-D-1B 100-D-46	CVP-2000-00010	3/12/2001	3/2001
116-D-2	CVP-2000-00013	10/23/2000	10/25/2000
116-DR-6	CVP-2000-00014	10/23/2000	10/24/2000
116-DR-4	CVP-2000-00015	10/23/2000	10/25/2000
100-D-12	CVP-2000-00016	10/23/2000	10/26/2000
100-D-52	CVP-2000-00018	11/7/2000	11/9/2000
116-DR-7	CVP-2000-00019	9/26/2000	10/2/2000
116-D-9	CVP-2000-00012	3/23/2001	3/23/2001
100 H Area			
1607-H2	CVP-2000-00024	2/5/2001	2/2001
1607-H4	CVP-2000-00025	2/26/2001	2/26/2001
116-H-1	CVP-2000-00026	4/4/2001	4/11/2001
116-H-7	CVP-2000-00027	7/24/2001	8/1/2001
100-H-5	CVP-2000-00028	12/21/2000	12/21/2000
100-H-17 116-H-2 100-H-2 100-H-30	CVP-2000-00031	3/6/2001	3/8/2001
100-H-21 100-H-22 100-H-1	CVP-2000-00029	3/29/2001	3/29/2001
100-H-24	CVP-2000-00030	5/9/2001	5/2001
116-H-3	CVP-2000-00032	4/3/2001	4/11/2001
100 N Area			
120-N-1 120-N-2 100-N-58	CVP-2001-00021	3/28/2002	4/18/2002
116-N-3	CVP-2002-00002	9/26/2002	12/23/2002
100 Area Misc. & 300 Area			
JA Jones	CVP-2001-00019	11/8/2001	12/10/2001
600-23	CVP-2001-00020	11/30/2001	12/17/2001
300-49 (Landfill 1A)	CVP-2000-00020	1/12/2003	6/9/2003
300-50 (Landfill 1B)	CVP-2000-00021	1/27/2003	6/9/2003
628-4 (Landfill 1D)	CVP-2003-00001	4/10/2003	7/23/2003
316-1(South Process Pond) & 300-262 UPR-300-FF-1 UPR-300-32, 33, 34, 35, 36, & 37	CVP-2003-00002	4/10/2003	7/23/2003

WIDS Site CVP Closeout Summary Table

WIDS Site Closeout	CVP Doc. No. documenting WIDS site closeout	EPA/ Ecology WIDS Signoff	Issue Rev. 0 CVP
100 F Area			
116-F-4	CVP-2001-00006	11/8/2001	11/15/2001
116-F-5	CVP-2001-00007	8/16/2001	8/23/2001
1607-F6	CVP-2001-00010	11/8/2001	11/15/2001
UPR-100-F2	CVP-2001-00011	4/22/2002	5/7/2002
100-F-19:1	CVP-2001-00002	5/21/2002	6/10/2002
100-F-19:3			
100-F-34			
116-F-12			
100-F-40	site closed (No CVP)	2/15/2002	2/15/2002
116-F-14	CVP-2001-00009	7/11/2002	7/18/2002
100-F-2	CVP-2001-00001	7/25/2002	8/5/2002
100-F-15	CVP-2002-00001	7/25/2002	8/6/2002
100-F-4			
100-F-11			
100-F-16			
116-F-9	CVP- 2001-00008	10/16/2002	10/22/2002
116-F-2	CVP- 2001-00005	1/13/2003	3/11/2003
126-F-1	CVP- 2002-00002	1/13/2003	TBD
100-F-35	CVP-2002-00007	4/15/2003	6/16/2003
116-F-1	CVP-2002-00009	5/22/2003	Pending
116-F-3	CVP-2002-00008	4/15/2003	6/16/2003
116-F-6	CVP-2002-00010	5/19/2003	Pending
116-F-10	CVP-2002-00006	4/15/2003	6/16/2003
1607-F2	CVP-2002-00005	1/13/2003	3/11/2003
100-F-19:2	CVP-2001-00003	5/27/2003	9/15/2003
116-F-11			
UPR-100-F-1			
100-F-29			
UPR-100-F-3	CVP-2003-10	6/9/2003	8/14/2003
100-F-25			
100-F-23	CVP-2003-11	6/9/2003	8/14/2003
100-F-24	CVP-2003-12	6/9/2003	8/14/2003

Remaining Sites - Sampling Design Closure Status

Attachment 5

Site	Description	Type of Reclass	MP-14 Reclassification Control Number	Signature Date of Reclassification
	ARCL SITES			
132-B-1	Tritium facility	no action	2003-44	pending
132-F-6	pump station	no action	2003-32	pending
132-F-5	Filter building F Area	no action	2003-29	pending
132-F-4	F Reactor Stack	no action	2003-23	pending
132-F-3	Gas Recirc Facility	no action	2003-25	pending
132-B-3	B Reactor Stack	no action	2003-11	pending
132-B-4	Filter building B Area	no action	2003-10	4/2/2003
132-B-5	Gas Recirc Facility	no action	2003-27	pending
132-C-1	C Reactor Stack	no action	2003-26	9/11/2003
132-C-3	Filter building C Area	no action	2003-24	9/11/2003
	Process Knowledge			
100-B-3	Hot Thinble BG	no action	2003-08	4/2/2003
128-D-1	Burn Pit (D Area)	no action	2003-09	pending
100-F-28	Septic system	Rejected	2001-30	1/29/2003
600-52	WB Surface Basin	no action	2003-28	pending
	Confirmation Sampling			
116-C-3	Chem Tanks	RTD	N/A	N/A
128-B-2	Bun pit	RTD	N/A	N/A
120-B-1	Battery Actid Sump	RTD	N/A	N/A
100-K-32	Acid Spill	RTD	N/A	N/A
100-K-29	Sandblast site	RTD	N/A	N/A
128-C-1	Burn pit	RTD	N/A	N/A
126-B-3	coal pit	RTD	N/A	N/A
100-K-31	Acid Spill	RTD	N/A	N/A
100-K-33	Acid Spill	RTD	N/A	N/A
600-108	vaults	RTD	N/A	N/A
100-C-7	Filter building	RTD	N/A	N/A
116-C-6	FSB Percolation Pit	Interim Closeout	2003-34	pending
116-B-15	SB Percolation Pit	No Action	2003-22	pending
100-B-1	Laydown Yard	RTD	N/A	N/A
128-F-1	Burn Pit	No Action	2003-35	pending
128-F-3	Burn Pit (has coal ash)	RTD	N/A	N/A
100-K-30	Acid Spill	Interim Closeout	2003-36	pending
128-K-1	Burn Pit	RTD	N/A	NA
600-107	Cribs, Storage Vault	No Action	2003-33	pending
600-131	WB Water sta./Fab Shop	Interim Closeout	2003-45	9/12/2003
628-01	WB Burn Pit	Interim Closeout	2003-46	9/16/2003
600-139	WB Auto Repair Shop	Interim Closeout	2003-41	9/12/2003
600-176	Paint Disposal Area	RTD	N/A	N/A
600-204	Hanford town site	Interim Closeout	2003-43	9/16/2003
600-201	WB Paint/Solid Waste Site	No Action	2003-38	9/12/2003
600-181	WB Oil Dump Site	Interim Closeout	2003-48	9/12/2003
600-128	WB Oil Dump Site	Interim Closeout	2003-39	9/16/2003
600-132	WB Const. Landfill	Interim Closeout	2003-40	9/12/2003
600-190	WB Tar &/or Paint Site	Interim Closeout	2003-47	9/16/2003
600-99	J. A. Jones	No Action	2003-37	9/12/2003

DRAFT

Attachment 6

Update on Increased Concentrations of Tritium in Groundwater Near the KE and KW Reactor Complexes

Bob Peterson, PNNL, 373-9020
(September 25, 2003)

Background

The K-Basins groundwater monitoring task is tracking three recent changes in groundwater conditions near the KE and KW reactor complexes:

- Unexpected increase in tritium concentrations in a well adjacent to the KE Basin: A tritium plume created by 1993 leakage from the KE Basin was detected at this well previously. Multiple potential sources for tritium in this area.
- Unexpected increase in tritium concentrations near the KW reactor, at a well located immediately downgradient of a past-practices disposal site that received liquid effluent containing tritium and carbon-14.
- Increased tritium concentrations in groundwater near the 100-K Burial Ground: Circumstantial evidence indicates the possibility of a previously unmapped tritium plume beneath the burial ground.

Increased Tritium In Groundwater Near KE Basin

- Elevated concentration of tritium at well 199-K-27 appeared in sample collected in April 2003 (**Figure** 1). Analytical result was checked for errors, with none found. The well was resampled in August and the elevated concentration confirmed. The most recent sample from the well was obtained on September 15, with results expected by early October.
- No co-contaminants have been detected in groundwater that would help identify the source for the tritium. Several potential sources for tritium exist in the area, including shielding water in the KE Basin and past-practices disposal sites.
- Investigation of KE Basin operations revealed no indications of water loss beyond that expected from normal evaporation. No other anomalous events involving basin operations have been identified. An "off normal" occurrence report was filed by the Spent Nuclear Fuels Project to cover the possibility that shielding water loss may play a role.
- No evidence of leaking fire hydrants and underground water lines has been discovered to date. (Note: Infiltration of clean water from leaking utility lines has been implicated in remobilizing vadose zone contamination from past-practice waste sites in this area).
- Path Forward: Continued investigations involving (a) ~monthly sampling at well 199-K-27 to monitor tritium trend, (b) monitoring of basin operations to detect anomalous loss of shielding water, and (c) potential impact of fire hydrant system water loss and surface excavation remedial actions on remobilizing vadose zone contamination.

Increased Tritium In Groundwater Near KW Condensate Crib

- Elevated concentrations of tritium at well 199-K-106A began gradually in 2001 and increased very rapidly between April and July 2003 (**Figure 2**). The most recent analytical result was checked for errors, with none found. The well was resampled on September 15, 2003 and results are expected by early October.
- The working hypothesis as to the source for this tritium is vadose zone contamination located beneath the KW Condensate Crib, which has been remobilized by an as yet unidentified process. KW Basin shielding water is a less likely source candidate, because (a) shielding water concentrations in the past have been much lower than those observed at 199-K-106*, and (b) if shielding water were the source for these high tritium concentrations, gross beta and technetium-99 would also be detected (gross beta was undetected in the high tritium sample).
- As at the KE Basin, calculations that monitoring shielding water loss rates have been re-checked, and water utility lines surveyed for possible leakage. No conclusive evidence for a cause has yet been uncovered.
- Path Forward (same as at KE): Continued investigations involving (a) ~monthly sampling at well 199-K-106A to monitor tritium trend, (b) monitoring of basin operations to detect anomalous loss of shielding water, and (c) potential impact of fire hydrant system water loss and surface excavation remedial actions on remobilizing vadose zone contamination.

* Footnote: Tritium concentrations in KW Basin shielding water have increased in recent months, because of the transfer of KE fuel to the KW Basin for re-packaging. Concentrations may have increased from the ~80,000 pCi/L historical levels to ~1,200,000 pCi/L (Dave Watson, FHI/SNF, personal communication, September 2003).

Increased Tritium In Groundwater Near The 100-K Burial Ground

- Tritium concentrations at well 199-K-111A began an unexpected increase in January 2000 (**Figure 3**). An investigation as to cause was inconclusive, although most evidence points to a previously unmapped plume located beneath the 100-K Burial Ground (PNNL-14031, September 2002). This plume may have shifted laterally in the direction of the well, possibly under the influence of water table mounding beneath the pump-and-treat injection well network, located to the east.
- The possibility of irradiated materials in the burial ground as a source for the tritium cannot be excluded (possible analogy to 618-11 Burial Ground situation).
- Path Forward: Continued monitoring of groundwater at well 199-K-111A on a quarterly basis. A soil gas investigation is being conducted along the downgradient side (river side) of the100-K Burial Ground. Sampling probes are in place and samples were collected in early September. Analysis of samples is in progress and results for helium isotopes in soil gas, as an indicator of tritium, are expected by late September/early October.

Figure 1. Tritium in Groundwater Near KE Basin

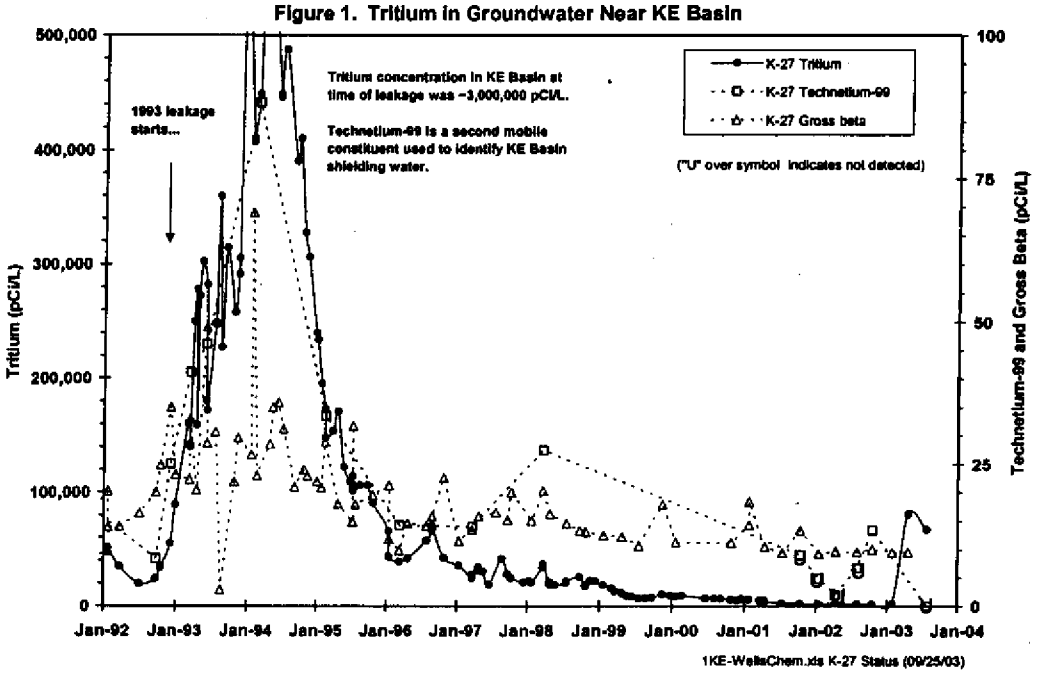


Figure 2. Tritium in Groundwater Near KW Condensate Crib

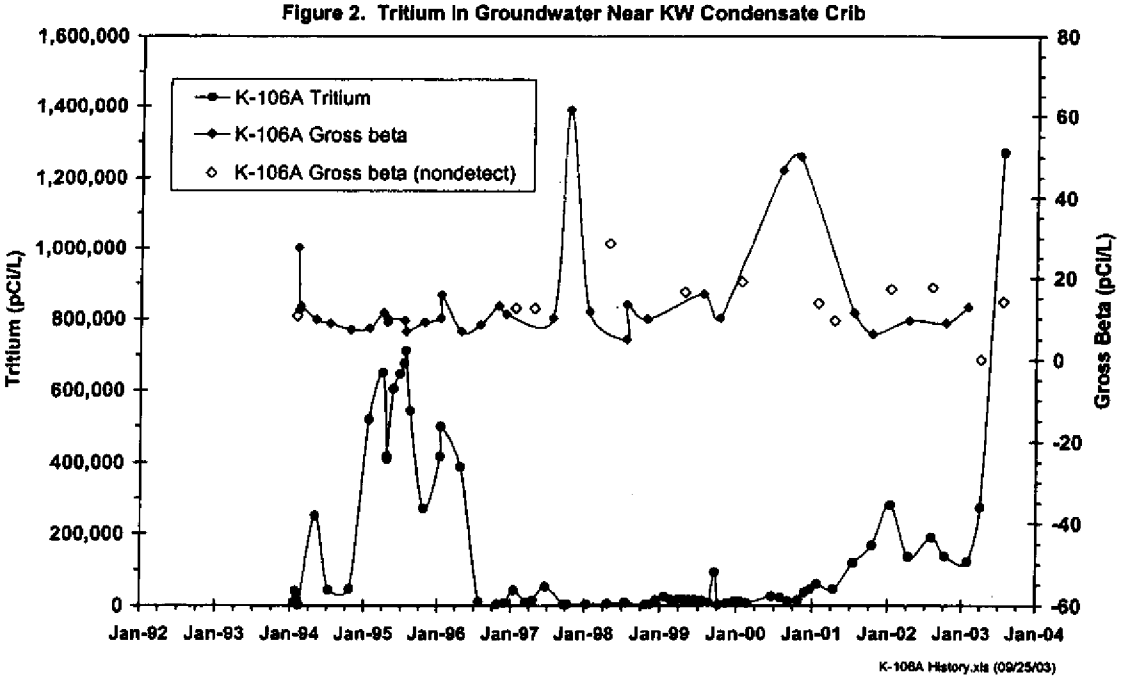
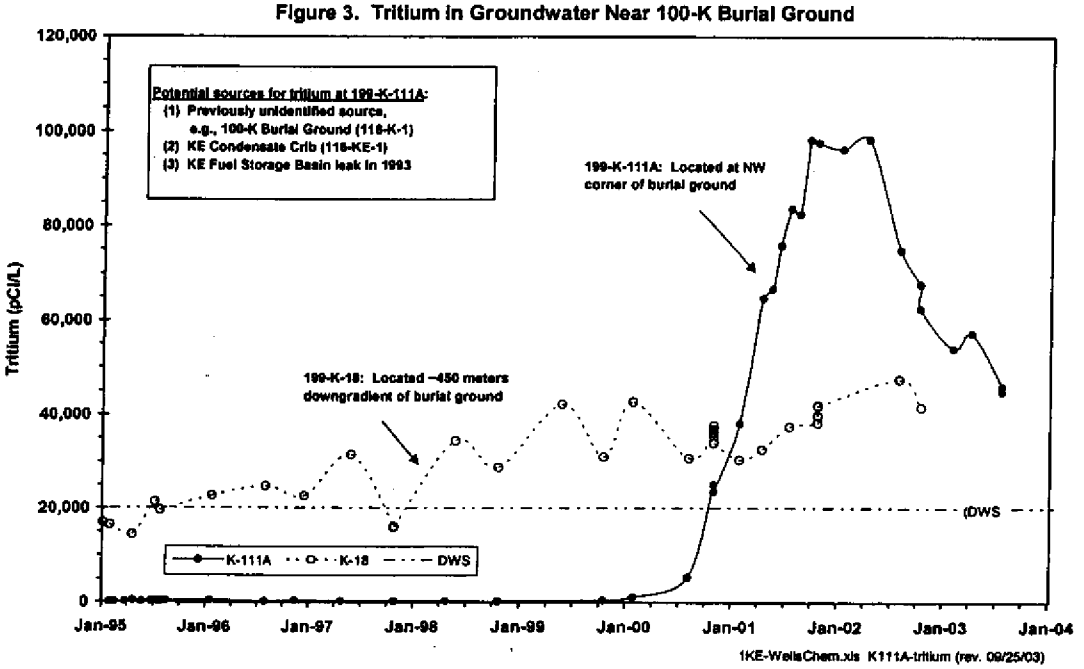


Figure 3. Tritium in Groundwater Near 100-K Burial Ground



100 Area UMM – September 2003

Groundwater operations for the report period are summarized as follows:

100-HR-3
The pump and treat system operated normally for the report period (average flow rate and run time not available due to database I/O problems).

ISRM: Standby work continued and will be completed by the end of September.

100 D Area: Hexavalent chromium concentrations in the corridor between the northeast end of the ISRM and the extraction well network capture zone are either remaining elevated or are continuing to increase (e.g. 199-D5-20 and 199-D5-41recently exceeded 1000 ug/L). The three new wells to be drilled in early FY04 are located in the "corridor" of increasing chromium concentrations. Attempts to locate driving forces and source areas continued. Preliminary modeling to evaluate the potential use of injected water to divert the zone with the highest chromium concentrations back toward the ISRM barrier was conducted as part of an evaluation of interim action options.

100-KR-4
The pump and treat system operated normally during the report period (flow rate and run time data not available due to database I/O problem).

Planning for installation of new aquifer tubes and characterization of the northeastern extent of the KR-4 plume continued. A draft sampling and analysis instruction (SAI) is in preparation and should be available for Ecology and EPA review by the first week of October.

100-NR-2
The system was shutdown for maintenance and repairs on 9/3/03. Final repairs were completed on 9/24/03. The system will be back on line following completion of clino reloading on or before the end of the month.

A statement of work to PNNL to evaluate phyto and apatite treatment options is in preparation for work to begin in early FY04.